



Serving the Vending, OCS and Foodservice Management Industries

June 24, 2002

William H. King, Jr.
Chief Engineer for Electrical and Fire Safety
US Consumer Product Safety Commission
4330 E W Highway
Bethesda, MD 20814-4408

Dear Mr. King:

Thank you for your e-mail of March 13, 2002 inviting the National Automatic Merchandising Association (NAMA) to comment on the CPSC Staff Recommendation for a new requirement in the 2005 National Electrical Code. This new requirement would necessitate the installation of ground fault circuit interrupter protection for personnel on all new cord and plug connected vending machines effective January 1, 2005.

We are very interested in your proposal and want to begin a dialogue with you and your staff regarding several aspects of your proposal.

NAMA is the national trade association for merchandise vending, office coffee services and foodservice management industry. Most of our 2,400 members operate vending machines for the sale of food and beverages to people in a wide variety of business and industrial locations. NAMA also counts many vending machine manufacturers and distributors among its members.

Size of the Industry

Industry trade journals estimated vending industry retail sales in the year 2000 at between \$25.6 and \$3.86 billion.¹ In that same year the number of electrically operated vending machines varied from 4.2 million to more than 3.5 million.² In addition the Trade Journals also estimated the number of vending operator companies in the US to be in the range of 9,000 to 10,800.³

These estimates of numbers of machines only include food and beverage vending machines and are the only types of machines we feel that relate to your proposed change in the electrical code. Therefore, for the

¹ Automatic Merchandiser Magazine 2001 State of the Industry Report, August 2002. Vending Time Magazine, Census of the Industry 2001, August 2002.

² Ibid.

³ Ibid., Automatic Merchandiser, page A-8; Vending Times, page 26.

The National Automatic Merchandising Association . www.vending.org

HEADQUARTERS: 20 N. Wacker Drive, Suite 3500, Chicago, IL 60606-3102, Voice: 312/ 346-0370, Fax: 312/ 704-4140

EASTERN OFFICE: 783 Station Street, Unit 1D Herndon, VA 20170-4607, Voice: 703/435-1210, Fax: 703/435-6389

SOUTHERN OFFICE: 1521 Johnson Ferry Rd., Suite 110, Marietta, GA 30062, Voice: 678/560-8705, Fax: 678/560-8702

WESTERN OFFICE: 150 South Los Robles Avenue, Suite 830, Pasadena, CA 91101, Voice: 626/229-0900, Fax: 626/229-0777

purposes of this letter and our future conversations when we refer to vending machines we will be referring to food and beverage machines. Discussion of Known Incidents
As previously mentioned the CPSC staff is recommending a new requirement be added to the 2005 National Electrical Code. You also sight several cases to support this recommendation including three incidents involving deaths.

After reviewing these incident reports it appears that in each case the existing ground fault protection provided by the grounding type supply cord was defeated. In one case involving a minor, the police said, "It looked like someone had cutoff or ground down the ground plug leaving it with only two prongs."⁴ In another case involving a minor the report said, "The grounding post on the plug was missing. He (the Police Examiner) removed the receptacle plate and found that the ground wire inside the connector was not connected."⁵ Finally, in the third case a connection box was not secured. The report stated, "There was a screw located where the terminal block was to be mounted, that was not used."⁶

Industry Concerns

After reviewing the above incidents NAMA would like to present the following observations and concerns on behalf of the merchandise vending industry.

1. Initially it seems from the cases submitted that the unfortunate deaths of the people involved arose from misuse of otherwise properly constructed equipment. In all cases the machines were not properly grounded. These incidents would ~~probably~~ not have happened if the machines were properly installed. Changes in the field to otherwise properly designed equipment cannot be overcome at the manufacturing stage.

Instead of installing ground fault circuit interrupter protection on machines NAMA would like to propose that the merchandise vending industry develop a set of installation guidelines and programs for vending operators to initiate during the installation of equipment. It is our belief, after reviewing all 13 cases of electrical incidents reported to the CPSC since 1985, that the majority of the problems were related to machines that had been moved. This then resulted in a machine's service cord being subject to some type of abuse. All vending machines are evaluated by Underwriters Laboratories or a similar organization to present the least possible risk to the public. Therefore, it seems to us that if we provide sufficient information and training material to vending operators we can prevent such incidences from occurring without the industry having to bear a very expensive corrective device which may have adverse consequences for the product.

2. Many food vending machines are refrigerated and vend perishable food products. One serious concern we have with the introduction of ground fault circuit interrupters on these circuits is nuisance tripping. Any accidental loss of power to the vending machine would cause a loss of food product at the operator's expense. This most probably is the

⁴ Case No. 970922CCC2427, Epidemiologic Investigation Report, October 8, 1997.

⁵ Case No. 950823CCCN2720, Epidemiologic Investigation Report, August 21, 1995.

⁶ Case No. 980402CCC3732, Epidemiologic Investigation Report, May 28, 1997.

reason why the NEC (ref. 210-8) does not require ground fault circuit interrupters on household refrigerators.

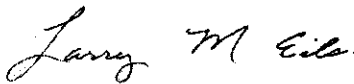
Access to the interrupter is another concern. Manufacturers of ground fault circuit interrupters recommend frequent testing of the device. However, vending machines usually do not stand alone. Most often they are placed in a "bank" of machines. This does not allow access to the ground fault circuit interrupter(s) for testing or resetting. There are several exceptions in the NEC to the requirement for interrupters that allow conventional receptacles in locations where they are not easily accessible for this reason.

Conclusion

Public safety is of great concern to the merchandise vending industry. Without confidence in our equipment the public would quickly shun using vending machines for fear of electric shock. Overall, we believe the industry has an excellent record of public safety. By all accounts millions of machines everyday are on location safely delivering products to consumers. The industry relies on Underwriters Laboratories' Standards 751 and 541 to help provide the best protection to our customers and our employees with minimal risk. Over the years this has proven to be a reliable method of protection based on the minimal number of incidences reported.

Therefore, your comments would be appreciated about our concerns and our proposal to develop technical and field training material for vending operators to determine the electrical safety of equipment that is currently in use.

Cordially,



Larry M. Eils
Senior Director Technical Services
LE/jb
PHT-Electrical Safety

Cc: NAMA Government Affairs Dept.
NAMA Technical Committee Members



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

William H. King, Jr.
Chief Engineer for Electrical and Fire Safety
Directorate for Engineering Sciences

Tel: 301-504-0508, ext. 1296
Fax: 301-504-0533
Email: wking@cpsc.gov

June 28, 2002

Mr. Larry M. Eils
Senior Director Technical Services
National Automatic Merchandising Association
20 North Wacker Drive, Suite 3500
Chicago, IL 60606-3102

Dear Mr. Eils:

Thank you for your offer to discuss further the CPSC staff's draft code proposal seeking ground-fault circuit-interrupter (GFCI) protection against electrocution for electric vending machines. The staff recognizes that there are options and alternatives for discussion, but firmly believes that a safety upgrade of the product itself is in order.

In response to points raised in your June 24, 2002, letter, we provide the following:

Improper grounding occurring in the field - NAMA makes the point that a field change that removes the ground cannot be overcome at the manufacturing stage. However, the GFCI does not rely on the presence of a grounding conductor to provide electrocution protection. Therefore, improved vending machine designs that have a GFCI protective device will be equipped to address this increased risk introduced by tampering and make these machines electrically safer. Electric vending machines are often located in damp or wet locations, in public places, and used by people standing on the ground. Under these circumstances, reliance on equipment grounding conductors for protection against electrocution is suspect at best.

An alternative design to a machine equipped with a GFCI would be a machine designed to be protected by a system of double insulation; as such systems are defined by nationally recognized standards. This alternative might address concerns about the loss of perishable food products (milk, yogurt, ice cream, ice, etc.) in the event of a GFCI trip.

Improved installation guidelines and programs - The CPSC staff completely supports a program of improved installation guidelines and programs for vending operators. But such a program should complement, and not replace design improvements for new machines. The installation guidelines would, for example, instruct installers of existing machines to connect them to branch circuits protected by GFCIs.

Nuisance GFCI tripping and the loss of perishable food products - Reports of nuisance tripping (tripping in the absence of a ground-fault condition) were associated with GFCIs produced over 20 years ago. Information from the housing industry, GFCI manufacturers, Underwriters Laboratories Inc., and CPSC's own experience indicates that nuisance tripping has been resolved. Current GFCIs are designed to meet rigorous requirements associated with events such as electrical surges, electro-magnetic interference, motor starting, and inductive load inrush.

As previously stated, alternative designs can address the issue of the loss of perishable food products. Not all refrigerated units vend food products considered perishable in the short term. These include canned and bottled drinks, coffee, snack foods (e.g., candy, chips, cakes, etc.). A GFCI trip would likely result in a response before such food products spoil.

Access to GFCI for testing - Vending machines are cord-connected appliances with plugs that get inserted into available receptacle outlets. The typical wall location for these outlets is considered readily accessible for those to whom ready access is requisite. While machines may be placed side-by-side, this does not render the cord and plug inaccessible for servicing or disconnecting the appliance from the electrical supply.

Cost of a GFCI plug or in-line GFCI - A mention is made regarding "a very expensive corrective device." The price of a weather resistant, heavy-duty GFCI plug or an in-line GFCI in the cord is in the \$40 range (retail). This amount has to be measured in conjunction with the cost of the machine, and the anticipated service life of the machine.

The views expressed in this letter are those of the technical staff, and have not been reviewed by the Commissioners. We look forward with interest to addressing any further concerns.

Sincerely,

William H. King, Jr.